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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,673	10/29/2001	Richard A. Nygaard JR.	10011219-1	1420

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AGILENT TECHNOLOGIES, INC.
INTELLECTUAL PROPERTY ADMINISTRATION, LEGAL DEPT.
P.O. BOX 7599
M/S DL429
LOVELAND, CO 80537-0599

EXAMINER

TSAI, CAROL S W

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,673

Applicant(s)

NYGAARD, RICHARD A.

Examiner

Carol S Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 0/28/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being obvious over U. S. Patent No. 5,210,712 to Saito in view of U. S. Patent No. 4,445,192 to Haag et al.

Saito discloses an eye diagram analyzer comprising: a variable clock signal waveform delay circuit having an input for receiving a clock signal and an output producing a delayed clock signal; a threshold detector having a variable threshold, an input for receiving a data signal to be measured as an eye diagram and having an output producing a logical data signal; a variable data signal waveform delay circuit having an input coupled to receive the logical data signal and an output producing a delayed logical data signal; a transition detection circuit coupled to the delayed clock signal and to the delayed logical data signal, and having an output producing a transition signal indicative of a transition in the delayed logical data signal occurring during a selected length of time subsequent to a transition in the delayed clock signal and a counter coupled to the transition signal and that counts occurrences thereof (see col. 4, lines 32-61; col. 7, line 36 to col. 8, line 4; and col. 14, line 31 to col. 15, line 4).

Saito does not disclose a memory whose content is organized as a data structure indexed by the difference in delays for the variable clock signal waveform delay circuit and the variable data signal waveform delay circuit, by the variable threshold, and that stores in an indexed location the number of counted occurrences.

Haag et al. teach a memory whose content is organized as a data structure indexed by the difference in delays for the variable clock signal waveform delay circuit and the variable data signal waveform delay circuit, by the variable threshold, and that stores in an indexed location the number of counted occurrences (see col. 5, lines 40-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Saito's method to include a memory whose content is organized as a data structure indexed by the difference in delays for the variable clock signal waveform delay circuit and the variable data signal waveform delay circuit, by the variable threshold, and that stores in an indexed location the number of counted occurrences, as taught by Haag et al., in order to store state or time counts and sampled data states in response to the events detected by the index module (see Haag et al. col. 5, lines 54-56).

Allowable Subject Matter

4. Claim 1 is allowed.
5. The following is a statement of reasons for the indication of allowable subject matter: U. S. Patent No. 5,210,712 to Saito in view of U. S. Patent No. 4,445,192 to Haag et al. are references closest to the claimed invention. Saito in combination with Haag et al. disclose a method of measuring a data signal to create an eye diagram of that

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signal, the method comprising the steps of: (a) setting a hits count to zero; (b) comparing the instantaneous voltage of a clock signal associated with the data signal to a clock threshold voltage to produce a logical clock signal; (c) delaying the logical clock signal by a selected first amount to produce a delayed logical clock signal; (d) comparing the instantaneous voltage of the data signal to be measured to a data threshold voltage to produce a logical data signal; (e) delaying the logical data signal by a selected second amount to produce a delayed logical data signal; (f) delaying the delayed logical clock signal by a selected third amount to produce a doubly delayed logical clock signal; (g) capturing the value of the delayed logical data signal in response to the delayed logical clock signal;. However, Saito in combination with Haag et al. do not teach (h) capturing the value of the delayed logical data signal in response to the doubly delayed logical clock signal; (i) incrementing the hits count each time a value captured in step (g) is different to that captured in step (h); (j) repeating steps (b) through (i) until a selected condition is satisfied; (k) subsequent to step (j), storing the count of step (i) in a data structure indexed by the difference between the first and second amounts and by the data threshold voltage; (l) repeating steps (a) through (k) with different combinations of the data threshold voltage and difference between the first and second amounts; and (m) generating an eye diagram from the hits counts stored in the data structure; and including all of the other limitations in the respective independent claims.

Response to Arguments

6. Applicant's arguments filed 10/28/2003 have been fully considered but they are not persuasive.

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Applicant argues that Saito does not discover the voltage of a data signal at a variable point in time by noticing a transition in that data signal about a threshold during a selected length of time anchored by the variable point in time. The Examiner disagrees with Applicant. As set forth above, Saito does disclose the voltage of a data signal at a variable point in time by noticing a transition in that data signal about a threshold during a selected length of time anchored by the variable point in time (see col. 7, line 36 to col. 8, line 4; As a result, at time t_2 , a difference between the input voltage to the subtractor 7 and the threshold value V_r becomes almost 0. Subsequently, this stable state is continued, and the digital signal having a reliably shaped waveform is obtained from the output terminal of the comparator 6).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. Tsai whose telephone number is (703) 305-0851. The examiner can normally be reached on Monday-Friday from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703) 308-1677. The fax number for TC 2800 is (703) 308-7382. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (703) 308-1782.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 308-7382. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. W. Tsai

12/09/03


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800